

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today
(1) was not written for publication in a law journal and
(2) is not binding precedent of the Board.

Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CHARLES R. SLATER,
MATTHEW A. PALMER, and PETER KRATSCH

Appeal No. 97-2486
Application 08/308,983¹

ON BRIEF

Before McCandlish, Senior Administrative Patent Judge, MEISTER
and NASE, Administrative Patent Judges.

¹ Application for patent filed September 19, 1994.
According to appellants, this application is a continuation of
Application 08/107,454, filed August 17, 1993, now U.S. Patent
No. 5,396,900; which is a continuation-in-part of Application
07/922,023, filed July 28, 1992, now U.S. Patent No.
5,331,971; which is a continuation of Application 07/680,392,
filed April 4, 1991, now U.S. Patent No. 5,192,298; and a
continuation-in-part of Application 07/978,249, filed November
18, 1992, now U.S. Patent No. 5,395,375; and a continuation-
in-part of Application 08/016,595, filed February 11, 1993,
now abandoned.

Appeal No. 97-2486
Application No. 08/308,983

MEISTER, Administrative Patent Judge.

DECISION ON APPEAL

Charles R. Slater, Matthew A. Palmer and Peter Kratsch
(the appellants) appeal from the final rejection of claims 37-
40. Claims 29-36, the only other claims remaining in the
application, stand allowed.

We AFFIRM-IN-PART and, pursuant to our authority under
the provisions of 37 CFR § 1.196(b), enter a new rejection of
claim 38 under 35 U.S.C. § 112, second paragraph.

The appellants' invention pertains to a method of
manufacturing an end effector for an endoscopic
electrosurgical instrument.² Independent claim 37 is further
illustrative of the appealed subject matter and a copy thereof
may be found in the APPENDIX to the brief.

The references relied on by the examiner are:

Horton	3,153,826	Oct. 27, 1964
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² Although the specification in describing the invention makes reference to Figs. 1, 1a, 1b, 2, 2a, 2b, 3, 3a, 3b, 4, 4a, 5, 5a, 6, 6a, 6b, 7, 8, 9a, 9b, 10a and 10b of the drawings (as well as various reference numerals associated therewith), the application file contains drawings depicting only Figs. 9a, 9b, 10a and 10b. Our understanding of the remaining figures is derived from copies of the drawings obtained from parent application 08/107,454 (which was filed under 37 CFR § 1.60).

Appeal No. 97-2486
Application No. 08/308,983

Stasz et al. (Stasz)	4,862,890	Sep. 5, 1989
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Eggers (EP)	0 518 230	Dec. 16, 1992
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Claims 37-39 stand rejected under 35 U.S.C. § 103 as being unpatentable over Eggers in view of Horton. The examiner considers that it would have been obvious to form the conductive bodies of the end effectors 18, 19 of Eggers (see the embodiment of Fig. 6A) by an investment casting process³ in view of the teachings of Horton.

³ According to the **McGRAW-HILL ENCYCLOPEDIA OF SCIENCE AND TECHNOLOGY**, McGraw-Hill, Inc., New York, N.Y., 1971, Vol. 2, p. 568:

In investment casting (lost-wax process) a wax or frozen mercury pattern is made; it is then dipped into a slurry of a refractory coating material such as silica and into liquids including water, ethyl alcohol, and acids. After the coating has dried, the pattern assembly is placed in a flask and filled with molding mixtures such as sand, water, and a binder. After the mold has dried in air, the wax is melted out by inverting and heating it between 200 and 300°F. Depending on the metal, the mold is then heated between 1200 and 1900°F for burnout (to drive off all gases) and for preheating, after which the molten metal is poured into the mold. After solidification of the casting, the mold is broken away and the casting is removed. The process is costly, but gives good surface finish and close tolerances, is suitable for casting high-melting-point alloys, and can be used for intricate shapes.

Appeal No. 97-2486
Application No. 08/308,983

Claim 40 stands rejected under 35 U.S.C. § 103 as being unpatentable over Eggers in view of Stasz. The examiner is of the opinion that it would have been obvious to mold the ceramic bodies of the end effectors 118, 119 of Eggers (see the embodiment of Fig. 6C) and to trace a conductive path on these bodies in view of the teachings of Stasz.

A detailed explanation of the rejections can be found on pages 2 and 3 of the answer. The arguments of the appellants and examiner in support of their respective positions can be found on pages 6-12 of the brief, pages 1-9 of the reply brief and pages 4-6 of the answer.

OPINION

Considering first to the rejection of claim 37 under 35 U.S.C. § 103 as being unpatentable over Eggers in view of Horton, the appellants note various deficiencies of the references individually and urge that there is no suggestion to combine the teachings of Eggers and Horton in the manner proposed by the examiner. In support of this position the brief states that:

Eggers teaching of how to make bipolar scissor blades [i.e., end effectors] is set out in columns 14 and 15 of the '230 patent. In one embodiment, Eggers teaches coating stainless steel blades with a ceramic material. In another embodiment, Eggers teaches coating most of the exterior surfaces of ceramic blades with copper, silver, or nickel. In neither embodiment does Eggers teach or suggest investment casting. Claim 37 specifically requires "casting a conductive body according to an investment casting process".⁴ When an end effector is made by investment casting according to the invention, all features of the end effector are formed during casting to provide an integral end effector element. This is in contrast with the prior art practice of making stainless steel end effectors which involves forging and extensive machining to achieve the desired finished forms. The use of investment casting eliminates the need for forging, extensive machining, abrasive blasting, pickling and other treatments. Therefore, it is submitted that the step of investment casting as set forth in method claim 37 provides unexpected results as compared to the prior art methods of making end effectors. [Pages 6 and 7; footnote added.]

We are unpersuaded by the appellants' arguments. While the obviousness of an invention cannot be established by

⁴ The specification makes no mention whatsoever of "investment" casting the conductive body but, instead, more broadly refers to "casting" this body (see, e.g., page 6, line 1). However, adequate descriptive support for this limitation is found in claim 37 as originally filed. If the provision of "investment" casting was such a vital part of the appellants' invention, it seems strange to us that all mention of its **importance** was omitted from the original description. **See *Graham v. John Deere Co.*, 383 U.S. 1, 24-26, 148 USPQ 459, 469-470 (1966).**

Appeal No. 97-2486
Application No. 08/308,983

combining the teachings of the prior art absent some teaching, suggestion or incentive supporting the combination (*see, e.g., ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984)), this does not mean that the cited references or prior art must specifically suggest making the combination (*B.F. Goodrich Co. v. Aircraft Braking Sys. Corp.*, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996) and *In re Nilssen*, 851 F.2d 1401, 1403, 7 USPQ2d 1500, 1502 (Fed. Cir. 1988)). Instead, obviousness may be established by what the combined teachings of the references would have suggested to those of ordinary skill in the art. *In re Young*, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991) and *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981)⁵. Moreover, in evaluating such referenc-

⁵ More specifically, as stated by the court in *Keller*, 642 F.2d at 425, 208 USPQ at 881:

The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.

Appeal No. 97-2486
Application No. 08/308,983

es it is proper to take into account not only the specific teachings of the references but also the inferences which one skilled in the art would reasonably be expected to draw therefrom (*In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968)), and all of the disclosures in a reference must be evaluated for what they fairly teach one having ordinary skill in the art (*In re Boe*, 355 F.2d 961, 965, 148 USPQ 507, 510 (CCPA 1966)).

Here, Eggers' explanation of how the end effectors 18, 19 are made is not limited **only** to columns 14 and 15 as the appellants would apparently have us believe. Eggers in lines 20-25 of column 11 clearly states that the electrically conductive end effectors 18, 19 may be formed by "numerous methods, including forging followed by machining, **die casting**, metal injection molding, and electrodischarge machining (EDM) cut-out of the features" (emphasis added). The metal used in casting the electrically conductive end effectors includes stainless steels such as AISI 410 and 420 (see column 11, line 19; column 14, line 8). Eggers further teaches coating selective portions of the bodies of the electrically conductive end effectors with a non-conductive coating 49 (see

Appeal No. 97-2486
Application No. 08/308,983

column 11, lines 46-49; column 12, lines 34-42; column 14, lines 2-19). In the embodiment of Fig. 4, Eggers utilizes a clevis 72, 73 to couple the end effectors 18, 19 to the actuator 16, 12, 13 of the endoscopic surgical instrument 10. Thus, Eggers teaches all the limitations of claim 17 as broadly set forth except for the particular die casting procedure which is employed (i.e., "investment" casting). With respect to this limitation, Eggers simply refers generically to "die casting," leaving to the artisan to select from well known die casting procedures (e.g., investment casting) the particular die casting procedure to be employed. By referring to the "investment casting industry" (column 1, lines 11 and 12), Horton provides evidence that investment casting is a well known die casting procedure. In making the selection of the particular kind of die casting procedure to be employed from various well known die casting procedures, the artisan would have been well aware of the respective advantages and disadvantages of each. **See, e.g., In re Heinrich**, 268 F.2d 753, 756, 122 USPQ 388, 390 (CCPA 1959). Moreover, Horton (1) provides a suggestion that investment casting be used where "precision" casting (i.e., casting to

Appeal No. 97-2486
Application No. 08/308,983

close tolerances) is of concern (see column 1, line 10) and (2) expressly teaches that the particular investment casting process of his invention is especially useful in order to overcome prior art problems of pitting when casting stainless steels of the Type 400 series (see column 1, lines 13-23), which stainless steels (as we have noted above) are among those used by Eggers. In our view, the artisan would have found it obvious to utilize the well known investment casting process, such as that taught by Horton, to cast the end effectors of Eggers. The artisan would particularly have been motivated to utilize Horton's investment casting process to cast Eggers' end effectors in order to achieve Horton's suggested advantage of "precision" casting (i.e., casting to close tolerances) and expressly stated advantage of avoiding problems of pitting when casting Type 400 stainless steels.

As to the appellants' contention that the use of an investment casting process results in the unexpected result of eliminating the need for forging, extensive machining, abrasive blasting and pickling, these same results are achieved by die casting (in general) as disclosed by Eggers.

Appeal No. 97-2486
Application No. 08/308,983

Moreover, such results are nothing more than would be expected. It is well settled that expected beneficial results are evidence of obviousness of a claimed invention, just as unexpected beneficial results are evidence of nonobviousness. **See, e.g., Ex parte Novak**, 16 USPQ2d 2041, 2043 (Bd. Pat. App. & Int. 1989), **aff'd mem.** 899 F.2d 1228, 16 USPQ2d 2043 (Fed. Cir. 1990).

In view of the foregoing, we will sustain the rejection of claim 37 under 35 U.S.C. § 103 based on the combined teachings of Eggers and Horton.

We consider next the rejection of claims 38 and 39 under 35 U.S.C. § 103 as being unpatentable over Eggers in view of Horton. With respect to claim 38, for reasons stated *infra* in our new rejection under the provisions of 37 CFR 1.196(b), we are of the opinion that this claim fails to satisfy the requirements of 35 U.S.C. § 112, second paragraph. Normally a claim which fails to comply with the second paragraph of § 112 will not be analyzed as to whether it is patentable over the prior art since to do so would of necessity require speculation with regard to the metes and bounds of the claimed subject matter. **See In re Steele**, 305 F.2d 859, 862-63, 134

Appeal No. 97-2486
Application No. 08/308,983

USPQ 292, 295-96 (CCPA 1962) and *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). Nevertheless, in this instance, we are of the opinion that the examiner's rejection of claim 38 cannot be sustained on the basis of those portions of the claimed invention that are understandable.

As the examiner recognizes, claim 38 requires the step of coating the entire cast body and thereafter removing the coating from selected locations, while claim 39 requires the step of masking certain locations of the cast body prior to coating and thereafter removing the mask from those locations. With respect to these limitations, the examiner has simply stated that "[t]he coating techniques of claims 38-39 are conventional" (answer, page 3). We must point out, however, obviousness under § 103 is a legal conclusion based on **factual evidence** (*In re Fine*, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988)) and the mere fact that, as a broad proposition, it might be known to remove a portion of coating material from an object after coating the object and to mask certain portions of an object before coating the object, does not provide a sufficient factual basis for establishing the obviousness of the specifically claimed method when

Appeal No. 97-2486
Application No. 08/308,983

considering that method in its entirety (**see In re GPAC Inc.**, 57 F.3d 1573, 1582, 35 USPQ2d 1116, 1123 (Fed. Cir. 1995) and **In re Warner**, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967), **cert. denied**, 389 U.S. 1057 (1968)). Since the examiner has failed to provide a factual basis (e.g., reference evidence) for concluding that method defined by claims 38 and 39 (when taken as a whole) would have been obvious, we are constrained to reverse the rejection of claims 38 and 39 under 35 U.S.C. § 103 based on the combined teachings of Eggers and Horton.

Turning now to the rejection of claim 40 under 35 U.S.C. § 103 as being unpatentable over Eggers in view of Stasz, it is the appellants' position that

Stasz et al. and Eggers are not properly combinable. Stasz et al. is directed to an electrosurgical scalpel which is not coupled to an actuation means, and is not an endoscopic instrument. The scalpel of Stasz et al. is a single blade which is not intended for use with another similar blade; i.e., it is not an "end effector" as claimed in the claim and described in the specification. Meanwhile Eggers is directed to a bipolar endoscopic instrument where the entire outer surface of the end effector is coated (i.e., there is no trace). If the traced coating of Stasz et al. **which extends on both sides of the scalpel blade** were to be applied to the endoscopic instrument of Eggers, it would render Eggers **non-functional** according to the teaching of

Eggers. The instrument would short circuit.
[Brief, page 10.]

The appellants' contentions are not persuasive. In the embodiment of Fig. 6C, Eggers provides end effectors 118, 119 having non-conductive bodies that are formed of "an electrically insulating material, e.g., a ceramic material . . ." (column 14, lines 51-53). While Eggers does not specifically state what process is employed to form the non-conductive bodies of ceramic material, Eggers does state (as we have noted above with respect to the rejection of claim 37), that in the embodiment of Fig. 6A, the metallic bodies may be formed by die casting or injection molding (see column 11, in lines 20-25). This statement by Eggers regarding the embodiment of Fig. 6A would have fairly suggested to the artisan to likewise make the ceramic non-conductive bodies in the embodiment of Fig. 6C by either die casting or injection molding. In any event, Stasz teaches an electrosurgical instrument (albeit a scalpel) wherein the non-conductive body is formed by "injection molding a green ceramic and then firing the molded part" (column 2, lines 65 and 66). Thus, Stasz teaches that when forming the non-conductive of body of an electrosurgical instrument of a ceramic material, an

injection molding procedure should be employed. From our perspective, a combined consideration of Eggers and Stasz would have fairly suggested to the artisan to utilize a molding procedure (such as injection molding) when forming the ceramic non-conductive bodies of Eggers in view of the above-noted teachings of Stasz.

As to the appellants' contention that Eggers does not teach "tracing" a conductive path, we initially note that the appellants on page 13 of the specification broadly refer to "plated traces 714, 704, 705 for electrical conductivity" which may be applied by "sputtering or by other suitable procedures," but does not define these plated or coated traces as being of any particular width or extent. Viewing Fig. 7 of the drawing, the traces are depicted as being of significant width and extent, and the purpose appears to be to simply provide a coating of electrically conductive material to conduct electricity from the point where clevis engages the non-conductive body to the outer end or working surface of that body. It is thus readily apparent that the appellants have utilized the terminology "tracing" in a very broad sense. In the embodiment of 6C, Eggers similarly provides a layer or

coating of electrically conductive material 166 to "most" of the exterior surface of the non-conductive body for the purpose of conducting electricity to the working surface of that body (see the paragraph bridging columns 14 and 15 of that body). Consistent with the appellants' specification, we are of the opinion that the formation of the coating 166 on the non-conductive body of Eggers can broadly be considered to be "tracing a conductive path."⁶ Moreover, Stasz clearly teaches that conductive lines or "tracings" 24 and 26 of relative narrow width may be provided to conduct electricity to the working end of the electrosurgical tool (see column 3, lines 38-42), and this teaching would have suggested to the artisan to similarly provide conductive lines or tracings of relative narrow width on the body of the electrosurgical instrument of Eggers, if for no other reason than to save on the amount of electrically conductive material that is coated or deposited. While the appellants contend that if the

⁶ It is well settled that the terminology in a pending application's claims is to be given its broadest reasonable interpretation consistent with the specification. ***In re Morris***, 127 F.3d 1048, 1056, 44 USPQ2d 1023, 1028 (Fed. Cir. 1997) and ***In re Zletz***, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

Appeal No. 97-2486
Application No. 08/308,983

teachings of Stasz (which has tracings on both sides of the non-conductive body) were applied to the non-conductive body of Eggers it would render Eggers' device non-functional, we must point out that all of the features of the secondary reference need not be bodily incorporated into the primary reference (***see In re Keller***, at 642 F.2d 425, 208 USPQ 881) and the artisan is not compelled to blindly follow the teaching of one prior art reference over the other without the exercise of independent judgment (***Lear Siegler, Inc. v. Aeroquip Corp.***, 733 F.2d 881, 889, 221 USPQ 1025, 1032 (Fed. Cir. 1984)). Here, it is the primary reference to Eggers that teaches providing the electrically conductive material or tracing only on one side of the non-conductive body.

For the reasons stated above, we will sustain the rejection of claim 40 under 35 U.S.C. § 103 based on the combined teachings of Eggers and Stasz.

Under the provisions of 37 CFR § 1.196(b) we make the following new rejection:

Claim 38 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly

Appeal No. 97-2486
Application No. 08/308,983

point out and distinctly claim the subject matter which the appellants regard as the invention. The purpose of the second paragraph of § 112 is to provide those who would endeavor, in future enterprises, to approach the area circumscribed by the claims of a patent, with adequate notice demanded by due process of law, so that they may more readily and accurately determine the boundaries of protection involved and evaluate the possibility of infringement and dominance. ***In re Hammack***, 427 F.2d 1378, 1382, 166 USPQ 204, 208 (CCPA 1970). Moreover, in order to satisfy the requirements of the second paragraph of § 112, a claim must accurately define the invention in the technical sense. ***See In re Knowlton***, 481 F.2d 1357, 1366, 178 USPQ 486, 492-93 (CCPA 1973). In addition, while the language of claim 38 may appear, for the most part, to be understandable when read in the abstract, no claim may be read apart from and independent of the supporting disclosure on which it is based. ***See In re Cohn***, 438 F.2d 989, 993, 169 USPQ 95, 98 (CCPA 1971).

Applying these principles to the present case, we are of the opinion that the recitation of the step of "coating the entire cast conductive body" introduces uncertainty into the

Appeal No. 97-2486
Application No. 08/308,983

claim which would preclude one skilled in the art from determining the metes and bounds of the claimed subject matter. More specifically, this claim depends from claim 37 which sets forth that the step of coating cast conductive body **except for** certain specified locations. Thus, parent claim 37 (which requires that less than the entirety of the cast conductive body be coated) is inconsistent with dependent claim 38 which requires that the **entire** cast conductive body be coated. Thus, not only does claim 38 (which includes all the limitations of claim 37 by virtue of its dependency thereon) fail to accurately define the invention in the technical sense since the cast conductive body cannot be considered to be both partially coated and entirely coated, but this language, when read in light of the appellants' own disclosure (which describes the subject matter of claims 37 and 38 as being separate, mutually exclusive embodiments), results in an inexplicable inconsistency that renders it indefinite.

In summary:

Appeal No. 97-2486
Application No. 08/308,983

The rejections of claims 37 and 40 under 35 U.S.C. § 103 are affirmed.

The rejection of claims 38 and 39 under 35 U.S.C. § 103 is reversed.

A new rejection of claim 38 under 35 U.S.C. § 112, second paragraph, has been made.

In addition to affirming the examiner's rejection of one or more claims, this decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b) (amended effective Dec. 1, 1997, by final rule notice, 62 Fed. Reg. 53,131, 53,197 (Oct. 10, 1997), 1203 Off. Gaz. Pat. & Trademark Office 63, 122 (Oct. 21, 1997)). 37 CFR § 1.196(b) provides, "A new ground of rejection shall not be considered final for purposes of judicial review."

Regarding any affirmed rejection, 37 CFR § 1.197(b) provides:

(b) Appellant may file a single request for rehearing within two months from the date of the original decision

37 CFR § 1.196(b) also provides that the appellants, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new

Appeal No. 97-2486
Application No. 08/308,983

ground of rejection to avoid termination of proceedings (37
CFR § 1.197(c)) as to the rejected claims:

(1) Submit an appropriate amendment of the
claims so rejected or a showing of facts relating to
the claims so rejected, or both, and have the matter
reconsidered by the examiner, in which event the
application will be remanded to the examiner. . . .

(2) Request that the application be reheard
under § 1.197(b) by the Board of Patent Appeals and
Interferences upon the same record. . . .

Should the appellants elect to prosecute further before
the Primary Examiner pursuant to 37 CFR § 1.196(b)(1), in
order to preserve the right to seek review under 35 U.S.C. §§
141 or 145 with respect to the affirmed rejection, the
effective date of the
affirmance is deferred until conclusion of the prosecution
before
the examiner unless, as a mere incident to the limited
prosecution, the affirmed rejection is overcome.

If the appellants elect prosecution before the examiner
and this does not result in allowance of the application,
abandonment or a second appeal, this case should be returned
to the Board of Patent Appeals and Interferences for final

Appeal No. 97-2486
Application No. 08/308,983

action on the affirmed rejection, including any timely request
for rehearing thereof.

No time period for taking any subsequent action in
connection with this appeal may be extended under 37 CFR
§ 1.136(a).

AFFIRMED-IN-PART
37 CFR § 1.196(b)

	Harrison E. McCandlish, Senior)	
	Administrative Patent Judge)	
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	James M. Meister)	BOARD OF
PATENT)	
	Administrative Patent Judge)	APPEALS AND
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Appeal No. 97-2486
Application No. 08/308,983

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